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TUNING DEVICE FOR USE IN RADIO RECEIVERS HAVING PUSH-BUTTONS

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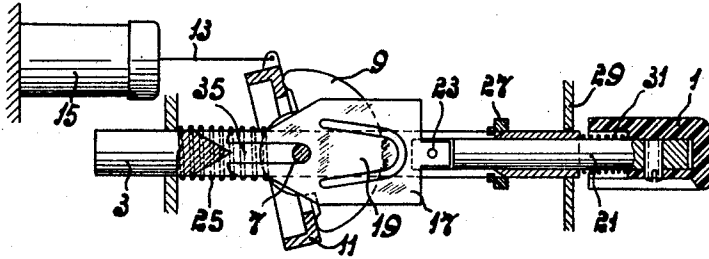


Fig. 1

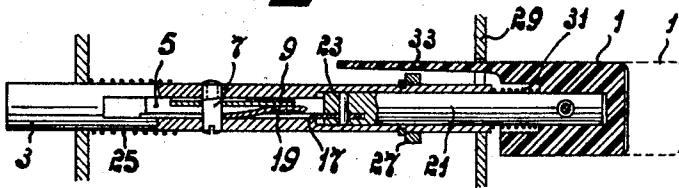


Fig. 2

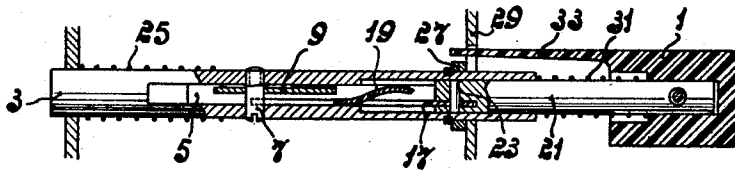


Fig. 3

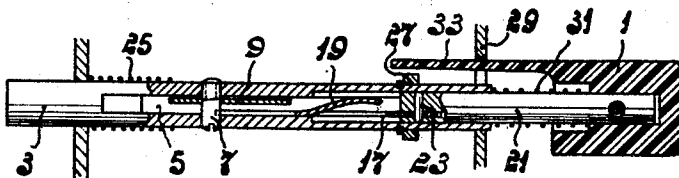


Fig. 4

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TUNING DEVICE FOR USE IN RADIO RECEIVERS HAVING PUSH-BUTTONS

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4 Claims. (Cl. 74—10.33)

The invention relates to a tuning device for use in radio receivers having push-buttons for the adjustment of predetermined positions of the tuning member by means of primarily semi-circular discs seated on the shafts of the push-buttons; each of these discs may be locked in any position relative to the shaft of the push-button by means of a clamping device and may be locked by pulling out the push-button. In the unlocked position each disc is freely rotatable and its position may be caused to correspond to the adjustment of the tuning member for the reception of a particular, desired station. By pushing in (completely) the button concerned this position may be fixed. Such a device is known for example from British patent specification No. 649,360.

The invention has for its object to provide a simple and readily controllable device of the aforesaid kind. According to the invention a plate which is displaceable closely along the semi-circular disc, is mechanically coupled with the part of the push-button which can be pulled out, a tag-shaped part of this plate being bent obliquely out of the plane of this plate in a manner such that upon pushing in the button the edge of the disc is clamped tight in a resilient manner between the slanting tag and an adjacent wall portion of the push-button shaft.

The invention will be described more fully with reference to one embodiment, which is shown in the drawing in different positions.

Fig. 1 is a horizontal view partly in section of the invention in the depressed position.

Fig. 2 is a plan view, partly in section, of Fig. 1 showing the normal depressed and extended positions.

Fig. 3 is a plan view, partly in section, of Fig. 1 showing the invention in the maximum extended position during tuning adjustment.

Fig. 4 is a plan view, partly in section, of Fig. 1 showing the invention in the mid position during tuning adjustment.

Figs. 1 and 2 are each an axial sectional view taken at right angles to one another, of a push-button 1 having a shaft 3, forming part of a radio receiver, the push-button being shown in the depressed position. Over part of its length the shaft 3 has a slot 5, which is bridged by a laterally introduced transverse stud 7, which operates as a shaft for a primarily semi-circular metal disc 9. In the position shown this disc is in contact at two points with a transmission member or swipe 11, which is journaled rotatably in the frame (not shown) of the radio receiver; the rotary shaft of the swipe 11 may coincide approximately with the centre line of the stud 7 in the position shown in Fig. 1. By means of one or more steel wires 13 the swipe may be coupled with a tuning member, for example with the cores of a plurality of moving-core coils 15. Owing to the contact at two areas the swipe 11 occupies a position which is determined by the position of the disc 9, so that in a conventional manner the tuning of the coils 15 to a particular desired station is obtained.

During the choice of the station the position of the

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disc 9 relative to the shaft of the push-button must, of course, be fixed, i. e. the disc must not be rotatable about the stud 7 or be rotatable about it only with difficulty. This is ensured by providing, at the side of the disc 9, in the slot 5, a plate 17, from which a tag 19 is cut and bent obliquely out of the plane of the plate. It is evident from Fig. 2 that the edge of the disc 9 is clamped tight in a resilient manner between the slanting tag 19 and the adjacent wall portion (in the slot 5) of the shaft of the push-button 3, so that the disc is locked in the desired position.

In order to permit an adjustment of the position of the disc 9, the locking must be detachable. This may be carried out by a displacement of the disc 9 relative to the shaft 3 in the direction of the centre line thereof. The front part (shown on the right-hand side of the figures) of the shaft 3 is tubular and comprises a fitting auxiliary shaft 21, to one end of which the push-button is secured. The other end is coupled mechanically with the aid of a stud 23 with the plate 17.

If the push-button 1 is released, it returns into the rest position under the action of a pressure spring 25 (this position is designated by 1' in Fig. 2 and shown in broken lines); then a lug 27 seated on the shaft engages the front plate 29 of the receiver. While the shaft 3 remains in its place, the auxiliary shaft 21 and the plate 17 may be drawn to the right by means of the button 1 until the position shown in Fig. 3 is reached, the disc 9 then being no longer locked and being freely rotatable about the stud 7.

In order to adjust the disc 9 to another position, the push-button 1 is depressed. A screw spring 31 provided about the auxiliary shaft—which spring is stronger than the spring 25—ensures that in this case the shaft 3 follows the movement of the button 1 against the force of the spring 25 and the friction of the shaft 3 in its bearing (see Fig. 4). As soon as the disc 9 is in contact at two areas with the swipe 11, which is previously moved in a conventional manner by means of a continuously movable tuning knob (not shown) into a position corresponding to a desired station, the disc 9 occupies the desired position. If the button 1 is further depressed, in this case against the force of the spring 31, the conditions shown in Figs. 1 and 2, in which the disc 9 is locked, are re-established.

The shaft 3 has preferably a circular sectional area; with this shape of the shaft and of the apertures in the frame of the receiver (for example in the plate 29), in which apertures the shaft is guided, the comparatively severe requirements for accuracy may be fulfilled without great expense. In order to avoid a rotation of the shaft 3 about its centre line, when the button is depressed, the push-button 1 is provided with an axial prolongation 33, which is adapted to slide in a fitting recess of the front plate 29. In the slot 5, which may be provided in the shaft 3 by a cheap milling operation, the disc and the plate 17 are rigidly supported and protected from the comparatively great lateral forces occurring during the locking operation.

It is of importance that the plate 17 should move accurately in the direction to the stud 7, when the disc 9 is locked, since otherwise a small turn of the disc 9 may be produced. To this end the plate 17 has a guide slot 35, extending in the direction of displacement, this slot 35 comprising the stud 7 and having a width which corresponds to—i. e. slightly exceeds—the diameter of the stud.

If desired, in order to improve the locking of the disc 9, a layer having a rough surface, for example a layer of emery paper may be applied to the disc 9 and/or to the adjacent wall portion of the shaft 3.

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What is claimed is:

1. A tuning device for radio receivers comprising a pushbutton provided with a shaft, a tuning member, at least one substantially semi-circular disc seated on the shaft of said pushbutton, the adjustment of said radio receiver to selective predetermined positions of said tuning member being made by means of said semi-circular disc, a clamping device seated on said shaft for releasably locking said disc in a plurality of positions on said shaft, said clamping device including a displaceable plate element having a struck-out portion whereby when said pushbutton is depressed a portion of said disc is clamped between said struckout portion and the adjacent wall portion of the pushbutton shaft, and when said pushbutton is pulled out said clamping device is unlocked.

2. A tuning device as set forth in claim 1 wherein said push-button shaft has a slot therein and said semi-circular

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disc and plate element are arranged in the slot of said shaft.

3. A tuning device as set forth in claim 2 further comprising a slot in said displaceable plate element, a stud in said slot of said push-button shaft and extending transversely to the axis thereof, said stud also extending through said slot in the displaceable plate element to serve as a guide for the latter.

4. A tuning device as set forth in claim 2 wherein the surface of said semi-circular disc juxtaposed to the adjacent wall portion of said push-button shaft is roughened whereby a frictional locking engagement of the disc and the push-button shaft may be effected.

References Cited in the file of this patent

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